

## CLAIMS:

1. An optical signal processing device equipped with a source of electromagnetic radiation of variable intensity, a non-linear optical component, which comprises at least one photoluminescent carbon nanotube, and with a means of detecting electromagnetic radiation.
2. An optical signal processing device as claimed in claim 1, characterized in that the non-linear optical component comprises a substrate and a layer having a number of photoluminescent carbon nanotubes.
3. An optical signal processing device as claimed in claim 2, characterized in that the non-linear optical component further comprises an intermediate layer between substrate and the layer having a number of photoluminescent carbon nanotubes.
4. An optical signal processing device as claimed in claim 1, characterized in that the electromagnetic radiation is monochromatic coherent laser light.
5. A non-linear optical component having at least one photoluminescent carbon nanotube.
6. A non-linear optical component as claimed in claim 5, characterized in that the carbon nanotube has a thin film coating.
7. A non-linear optical component as claimed in claim 5, characterized in that the carbon nanotube is embedded in a non-oxidizing matrix.
8. A non-linear optical component as claimed in claim 5, characterized in that the carbon nanotube is embedded in a non-oxidizing matrix, which is transparent for electromagnetic radiation.

9. A non-linear optical component as claimed in claim 5, characterized in that the carbon nanotube is embedded in a non-oxidizing, flexible matrix.